CLAIMS

1. A method of extruding a slab of dry ice from a source of liquid CO_2, said method comprising the following steps:

blocking an extruding slot in a die at an end of a cylinder of a dry ice extruding machine;

injecting said liquid CO_2 from said source into said cylinder of said dry ice extruding machine to form gaseous CO_2 (snow) and solid CO_2 therein;

degassing said cylinder to remove gaseous CO_2 through vents from said cylinder while forming said snow in said cylinder;

building a puck in said end of said cylinder having said extruding slot in said die by moving a pressure piston back and forth in said cylinder of said dry ice extruding machine during said injecting;

unblocking said extruding slot to allow dry ice to be extruded therethrough;

breaking said extruded dry ice upon the length thereof reaching a predetermined distance to give said slab of dry ice; and

repeating said breaking step to create as many of said slabs of dry ice as desired.

2. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 1, including after said unblocking step an additional step of sensing when said slab of dry ice being extruded has reached said predetermined distance to give a sizing control signal.

3. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited Claim 2, wherein said sizing control signal activates a sizing mechanism for said breaking of said slab of extruded dry ice into a predetermined length which corresponds with said predetermined distance.

4. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 3, further including at the outer end of said extruding slot a forming chamber with a forming slot therein for receiving said slab of extruded dry ice therethrough, said forming slot allowing said slab of extruded dry ice to set before said breaking step.

5. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 4, wherein said sizing mechanism moves a sizing block adjacent said forming chamber for said breaking of said extruded dry ice in said predetermined length.

6. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 5, wherein said sizing mechanism is pneumatically operated and said pressure piston is hydraulically operated.

7. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 1, including a removable gate for said blocking and said unblocking of said extruding slot.

8. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 7, wherein said removable gate is activated by a gate cylinder.

9. The method of extruding a slab of dry ice from a source of liquid CO_2 as recited in Claim 8, wherein said removable gate is pressed against said extruding slot until a puck is formed in said cylinder.

10. A die for connecting to an extrusion chamber of a dry ice extruding machine, said die being used to extrude dry ice therethrough from a source of liquid CO_2, said die comprising:

generally rectangular shaped hole in said die for extruding dry ice from said condensing chamber of said dry ice extruding machine therethrough, said generally rectangular shaped hole being tapered for proper extrusion;

forming chamber having a similar generally rectangular shaped hole therein, said die and said forming chamber being adjacent, said forming chamber being of sufficient length to allow extruded dry ice to set up in a solid form in said similar generally rectangular shaped hole; and

means for attaching said die to an end of said extrusion chamber of said dry ice extruding machine.

11. A die for connecting to an extrusion chamber of a dry ice extruding machine, said die being used to extrude dry ice therethrough from a source of liquid CO_2 as recited in Claim 10, said die further including a block for removably blocking said similar oblong shaped hole until a puck has formed in said dry ice extruding machine.

12. A die for connecting to an extrusion chamber of a dry ice extruding machine, said die being used to extrude dry ice therethrough from a source of liquid CO_2 as recited in Claim 11, wherein said die further includes a sizing mechanism for breaking off said extruded dry ice in predetermined lengths.

13. A die for connecting to an extrusion chamber of a dry ice extruding machine, said die being used to extrude dry ice therethrough from a source of liquid CO_2 as recited in Claim 12, wherein said die further includes a sensor for determining when said extruded dry ice reaches said predetermined length to activate said sizing mechanism.

14. A dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2, a source of power connecting to said dry ice extruding machine, said dry ice extruding machine comprising:

a frame;

at least one extrusion cylinder mounted on said frame;

a piston in said extrusion cylinder;

connection of power from said source of power to said piston to cause back and forth movement of said piston in said extrusion cylinder;

injection ports on said extrusion cylinder for injecting said liquid CO_2 into said extrusion cylinder and flashing said liquid CO_2 into gaseous and solid CO_2;

vents on said extrusion cylinder for venting said gaseous CO_2 from said extrusion cylinder;

a die mounted on a first end of said extrusion cylinder, said die having a slot therein for extruding a slab of said solid CO_2 therethrough; and

blocking device for blocking said slot until a puck has formed in said first end of said extrusion cylinder and thereafter removing said blocking device.

15. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 14 wherein said connection of power is a hydraulic cylinder driving said piston through a second end of said extrusion cylinder.

16. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 15 wherein said dry ice extruding machine includes a sensor for determining if said slab has reached a predetermined length and generating a sizing control signal, said sizing control signal activating a sizing mechanism to break said slab into said predetermined length.

17. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 16 wherein said die further includes a forming chamber with a forming slot therein so that said slab can set before being broken into said predetermined length.

18. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 17 wherein said slot in said die and said forming slot in said forming chamber are tapered for proper extrusion.

19. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 16 wherein said sizing mechanism is a block that moves adjacent and parallel to an outer face of said forming chamber to break said slab into said predetermined length, said block being pneumatically operated.

20. The dry ice extruding machine for extruding slabs of dry ice from a source of liquid CO_2 as recited in claim 14 wherein said blocking device is pressed on outer opening of said slot to prevent escape of CO_2 therethrough while forming said puck.